

REMARKS

In the Office Action, the Examiner rejected Claims 1, 2, 4, 5, 7-9, 11, 12, 14 and 16 under 35 U.S.C. 103(a) as being unpatentable over Mennie et al. (U.S. Patent Number 6,721,442 B1) in view of Lee et al. (U.S. Patent Number 6,786,954 B1) and Voellmer et al. (U.S. Patent Number 6,439,395 B1). The Examiner also rejected Claim 3 under 35 U.S.C. 103(a) as being unpatentable over Mennie et al. in view of Lee et al. and Voellmer et al. as applied to Claim 1, and further in view of Ligas et al. (U.S. Patent Number 5,289,547). Finally, the Examiner rejected Claims 6 and 10 under 35 U.S.C. 103(a) as being unpatentable over Mennie et al. in view of Lee et al and Voellmer et al. as applied to Claim 1, and further in view of Allatar (U.S. 2002/0126873 A1).

Claims 1, 8 and 11 are being amended to distinguish over the prior art reference to Mennie whether taken alone or in combination with Lee, Voellmer, Ligas and Allatar.

For the reasons set forth below Claims 1-12, 14 and 16 patently distinguish over the prior art and are allowable. The Examiner is, accordingly, respectfully asked to reconsider and to withdraw the rejection of Claims 1-12, 14 and 16 under 35 U.S.C. 103(a) and to allow Claims 1-12, 14 and 16.

With respect to the rejection of Claim 1, Claim 4 is being canceled and the subject matter thereof directed to the use of custom color ink for providing the out of gamut color is being incorporated therein. Similar amendments are being made to each of Claims 8 and 11, also amended herein. Claim 1 is being amended to distinguish over Mennie, Lee, Voellmer, Ligas and Allatar. Specifically, Claims 1, 8 and 11 are being further amended to set forth that the out of gamut color is selected from a differentiated gamut volume lying outside the gamut of printable colors but inside both the gamut of object colors and the gamut of physically recognized colors in a 3 dimensional color space, the out of gamut color being produced by the custom color ink.

Respectfully, no new matter is being entered as full support in the specification for the added limitations can be found in the present specification in the paragraph bridging pages 8 and 9.

Particularly, the present invention, as claimed in Claims 1, 8 and 11 as now amended, discloses a method of deterring document counterfeiting comprising: providing at least one authentic hard-copy document, each of said authentic hard-copy document including at least one mark having at least one color that is out of gamut of a printing device having at least three ink colors; color scanning a plurality of candidate documents to form scanned documents each having a two-dimensional array of image pixels for each candidate document; searching each array for said at least one out-of-gamut color mark; sorting said plurality of candidate documents into a first group of scanned documents not having said at least one out-of-gamut color mark, and into a second group of scanned documents having said at least one out-of-gamut color mark, so that said scanned documents in said first group being characterized as counterfeit, and said scanned documents in said second group being characterized as authentic; and wherein a custom color ink is used, the out of gamut color selected from a differential gamut color volume lying outside a printable colors gamut volume but inside both an object colors gamut volume and a gamut of physically realizable colors in a 3 dimensional color space.

In the rejection, the Examiner refers to Figures 21 and 22 in Mennie. However, in this regard, Mennie merely discloses a document handling system that is configured for processing a variety of different documents. The system includes an input receptacle for receiving a stack of documents, a standard sensor for scanning at least one non-color characteristic of the bills in the stack, a color sensor for scanning the color characteristics of the bills, and an output receptacle for receiving the bills after they have been processed. A transport mechanism is included for transporting bills, one at a time, from the input receptacle past the sensors to the output receptacle. An operator interface is provided for displaying information to an operator and inputting information to the system. A processor is also included for processing the data gathered from the sensors to evaluate the bills.

Lee, respectfully, is of no help. In the rejection, the Examiner refers to Lee at column 17 lines 62-67. However, in this regard, Lee merely describes sets of ink components, and ink compositions, useful for printing markings, on security documents, that are relatively resistant to counterfeiting. Also disclosed are the security documents formed, a method of printing and a method of authenticating the printed material. The markings, formed of the ink compositions have a spectral response that deviates from a predicted spectral response when linearly additively combining spectral responses of components of the ink composition, so that it becomes difficult to reverse-engineer the ink composition from the markings. Use of plural different markings, with each marking being a microdot, increases difficulty in counterfeiting. By forming a template of spectral responses of the original pattern, spectral responses of a pattern on an unknown document can be compared to the spectral responses on the template for determining whether the unknown document is authentic. Formation of the markings is facilitated using an inkjet printer. There is no mention of providing a mark on a document using custom colored ink to produce an out-of-gamut color lying in the differential gamut volume lying outside the printable colors gamut volume but inside both the gamut of object colors and physically recognizable colors in a 3 dimensional color space as now claimed.

Further, while the Examiner primarily relies on Lee for the rejection of Claims 1 and 4, it is submitted that, Lee only speaks to a method of making ink formulations using microdrop combinatorics. While the Examiner cites Lee at the paragraph bridging cols. 17 and 18 as teaching "out of gamut" colors applicants note that Lee absolutely makes no mention of ink that produces an "out-of-gamut" color. All Lee states is that their authenticated marks are "not required to be reproducible by publicly available hardware". However, just because it is not "reproducible" by common available printers does not mean it is out of gamut. That is, while Lee may suggest that the color may not be "reproducible by publically available hardware", this contemplates that Lee's ink color may lie outside the gamut of printable colors however, but not necessarily within (inside) both the gamut of object colors and the gamut of physically recognized colors in a 3 dimensional color space as shown in the present invention in FIG. 3.

Voellmer, respectfully, is also of no help. In the rejection, the Examiner refers to Voellmer at column 3 lines 17-20. However, in this regard, Voellmer merely discloses providing an apparatus for sorting sheetlike data carriers which firstly has a compact and ergonomically optimal design and secondly permits the use of compact and cost-effective test devices, it is proposed that the input pocket (2) and the output pocket (12-15) are designed and oriented with respect to the front side (1) of the apparatus such that the long sides of the data carriers (3) face the operator. The singling device (19) and the transport system (4) transport the data carriers through a test device in the direction of their long sides. After running through the test device (6) the data carriers are supplied to one of the output pockets (12-15) by a longitudinal/cross conveying device (7) along their transverse sides. Again, there is no mention of providing a mark on a document using custom colored ink to produce an out-of-gamut color lying in the differential gamut volume lying outside the printable colors gamut volume but inside both the gamut of object colors and physically recognizable colors in a 3 dimensional color space.

Ligas, respectfully, is of no help. In the rejection, the Examiner refers to Ligas at column 2 lines 58-60. However, in this regard, Ligas merely discloses an improved method for authenticating articles. A mixture of at least two photochromic compounds that have different absorption maxima in the activated state and also preferably other different properties are incorporated into a carrier composition, e.g., ink, paint, fiber or polymer used to form the authenticating display data on the article. The authenticating display data is subjected to various steps of the authenticating method that may include preferential activation of less than all of the photochromic compounds, activation of all the photochromic compounds, preferential bleaching of less than all of the photochromic compounds, and bleaching of all the photochromic compounds. Subsequent examination of the display data following the various activation and bleaching steps by verifying means enables the article to be authenticated. Again, there is no mention of providing a mark on a document using custom colored ink to produce an out-of-gamut color lying in the differential gamut volume lying outside the printable colors gamut volume but inside both the gamut of object colors and physically recognizable colors in a 3 dimensional color space.

Allatar, respectfully, is also of no help. In the rejection, the Examiner refers to paragraphs [34] and [35]. However, in this regard, Allatar merely describes a detector 34 such as a CCD array detects the component colors 33a-n. Of course, the detector 34 can be aligned or calibrated with prism 32 to help improve detection reliability. Or if a spectrophotometer is used, such detecting functionality is likely provided by the spectrophotometer, which can detect on absorption or emission characteristics, for example. A "signature" is determined for a subject spot color based on the color components 33 a-n. A signature in this implementation, e.g., as shown in FIG. 3b, represents the various spot color spectral components a-n. Again, there is no mention of providing a mark on a document using custom colored ink to produce an out-of-gamut color lying in the differential gamut volume lying outside the printable colors gamut volume but inside both the gamut of object colors and physically recognizable colors in a 3 dimensional color space.

In light of the differences between Claims 1, 8 and 11, and the prior art, Claims 1, 8 and 11 distinguish over Mennie, whether taken alone or in combination with Lee, Voellmer, Ligas and Allatar. Claims 2-7, 9-10, 12, 14 and 16 are dependent from, and are allowable with Claims 1, 8 and 11. The Examiner is thus, respectfully asked to reconsider and to withdraw the rejection to Claims 1-12, 14 and 16 and to allow these claims.

If the Examiner believes that a telephone conference with Applicants' Attorneys would be advantageous to the disposition of this case, the Examiner is asked to telephone the undersigned.

Respectfully Submitted,



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